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No. LXVII.

An Essay on a new Method of treating the Effusion which collects under the Scull after Fractures of the Head. By J. DEVEZE, Officer of Health, of the first class, in the French Armies.

Read, May 6, 1796. **O**F the different cases which require the operation of the trepan, I shall only consider the effusion between the dura mater and the scull, occasioned by blows and fractures.

Mr. Petit, a celebrated surgeon of Paris, has contributed greatly to the improvement of this art, by pointing out the particular symptoms which distinguish effusions under the scull from concussion of the brain. These different accidents equally result from falls or blows received on the head; and previous to this distinction it was easy to confound them, a mistake highly prejudicial to the patient who is affected with concussion only, as it requires a different treatment from effusion and is not relieved by the trepan.

When there is a collection of blood from a blow or fracture of the scull, all authors advise the trepan, in order to discharge the collected fluid; but the difficulty of ascertaining the part where it has accumulated, often makes frequent repetitions of the operation necessary before it is discovered. Mr. Mareschal, first surgeon to Louis XIV. gives us an example of this, he trepanned a young lady twelve times before he found the effusion occasioned by a fracture of the parietal and temporal bones on the same side. This case, and many others of a similar kind too numerous to relate, evidently shew how important it is to render an operation more easy, which is often repeated without real necessity, is painful to the operator, and sometimes fatal to the patient.

I do not flatter myself with having obtained this object ; but I think it a duty to communicate to the society some ideas which have occurred to me, and by which I have been so happy as to succeed in a case I had an opportunity of attending, in the French hospital established in Philadelphia.

In cases of accumulated blood between the scull and dura mater, the adhesion which unites them, is destroyed in the place occupied by the fluid, the collected matter is circumscribed in a larger or smaller space, it expands the dura mater, and forming a tumor that oppresses the brain, produces the effects which require the operation of the trepan.

In this case a single opening made in the scull on one of the points of effusion, is sufficient to give vent to the fluid, because the blood pressed on all sides by the action of the brain, quits the place it had collected in, and flows towards the part that offers a passage. It happens in this case, as it does in that where the accumulation exists between the dura and pia mater, that the blood, equally pressed by the brain, runs between those two membranes, flows towards the opening by the trepan, and presses the dura mater outward, which indicates to the operator that this membrane requires incision, in order to give passage to the collected fluid.

It is only in the first case that the adhesion of the dura mater to the cranium, by retaining the fluid, requires a repetition of the opening, should the operator not meet at first with the precise spot where the fluid is collected.

To avoid these inconveniences, I propose in such a case to destroy the adhesion which unites the dura mater to the scull, and establish a communication between the collected blood and the opening already made by the trepan ; by this means a repetition of trepanning would be avoided, and the operation becoming more easy might save the life of the patient in any case not necessarily mortal, which

is particularly interesting, when the effusion is situated at the bottom of the scull.

If instead of trepanning twelve times, Mr. Mareschal had separated the dura mater from the cranium, following the direction of the fracture, he would have certainly reached the effusion, and the blood would have been evacuated by the first opening, although it must have risen against its own weight; this will be easily understood by physiologists who advert to the force of pressure the brain exercises on every part of the scull, and compare it with the resistance the collected blood may oppose by its specific weight.

The danger arising from a separation of the dura mater, may perhaps be considered as forbidding the method I recommend, but experience shews this separation is not dangerous, since, as I have already said, blood cannot collect between these two parts, without separation, and yet they return to their natural state, when the fluid is evacuated by the trepan, even where the separated parts have long remained divided from each other by the interposition of the fluid.

Of the cases which support my opinion, it will be sufficient to mention the following.

A young person after the scarlet fever, had a violent pain which fixed itself at the upper part of the head; every thing art could indicate was tried to effect a cure, bleeding, bathing, cathartics, internal remedies, topicals of every kind, and blisters on the affected part, all had failed: when I was consulted, I advised the moxa, which was applied to the diseased part, and though a plentiful suppuration followed, the pain seemed to increase, and for six months continued to augment; when I was again requested to give my advice. I prescribed the trepan, which operation was immediately performed, in the centre of the painful part: the opening made in the scull by this

means gave vent to a quantity of pus of a greenish white colour ; the pain ceased entirely, the patient was soon cured ; and since has enjoyed a perfect state of health.

The preceding observation clearly shews the dura mater had been long separated from the scull by the matter, and proves that the separation of this membrane is not dangerous.

It will be said perhaps that this separation did not produce any bad effect because it took place gradually : my answer is, an effusion occasioned by violent blows is suddenly formed, it forces the dura mater from the cranium with violence, and separates it sometimes to a great extent. It may be again objected that nature though acting hastily, manages in a manner art cannot imitate in separating the dura mater from the scull. I will oppose this objection by experience, and not argument.

The 29th of March 1795, there was brought to the French hospital established in this city, a man about thirty-eight years of age, of a middle size and very robust constitution : he was comatose, his face inflated and discoloured with ecchymosis, his body covered with bruises, and many wounds made with pointed instruments : those who brought him, told me he had been struck with an iron bar which fractured his scull ; and had been trepanned on the spot.

After uncovering the head, it was washed and shaved : and I found the trepan had been applied on the upper part of the right parietal bone, about an inch from the coronal suture.

I took away, with the lenticular knife, pieces of the internal plate which wounded the dura mater, and enlarged the wounds in the direction of the fracture on which the trepan had been applied ; it proceeded from the sagittal suture, and descended almost in a right line into the temporal region, at the upper part of which I bounded my incision, although

although the fracture extended lower: I observed another fracture in the upper and lower part of the same parietal, which had separated a piece of the bone about three inches long, and two wide; this piece was neither indented nor displaced, was behind and a little above the part trepanned: blood issued from the superior and posterior fractures.

The next morning the patient was in the same state, insensibly voided his urine and could not swallow. The dressing was removed, much blood came from the opening by the trepan, and from the fractures.

When I visited him in the evening he was comatose; but little blood came from the wound, nor did the pressure I made on the dura mater produce more. I introduced a blunt flexible probe under the scull in the direction of the fracture, from whence the blood proceeded in the last dressing, and endeavoured to do the same by the fracture which descended to the temporal region: at the distance of about a quarter of an inch, was stopped by a sudden resistance, and it was at that moment reflection suggested the method I immediately put in practice.

I presumed the comatose drowfulness which continued, was occasioned by collected blood, and that it existed under one of the points of the fracture in the temporal region, because those effusions which had been formed under the other fractures, were evacuated in the preceding dressing.

Had I followed the usual method, it is possible I might have made many openings before I had succeeded, or have failed finding it; consequently after the reflection which suggested, that the adhesion between the scull and the dura mater might be separated without inconvenience, I determined to separate the membrane by following the direction of the fracture; and proceeded to this operation with a silver spatula very flexible, the extremities of which were rounded: I took the precaution to press it towards the bone, and to bend my instrument by degrees as I entered, to make
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it take the form of the part upon which I acted, and often drew it back, to measure on the outside the way it had made. At length after having entered half an inch below the temporal fcaly future, the resistance suddenly ceased, and my instrument entered a hollow part, at the same moment the blood flowed in great abundance; when it ceased I drew out the spatula, which was followed by a small quantity. The patient then began to move strongly, tried to rise and talked without knowing what he said.

The next morning I found him tied in his bed, this method was necessary, because he endeavoured to rise, as as he said to go and fight. More blood came away at the dressing. In the afternoon I found him better, he drank plentifully, and answered my questions: the next morning, being the fourth after the accident, he had perfectly recovered his senses, and from that time continued to mend. As his head had been much wounded, many abscesses were formed on the exterior, the last was on the piece of the parietal bone already spoken of, and as it had no connection and was vacillating, I easily took it away, the dura mater recovered and followed the motion of the brain: the wound had suppurated and the cicatrix was much advanced, when the patient went out the 28th of December.

During the cure the patient felt no pain in that part of the head where I had separated the dura mater; the cure of this trepan was neither longer or more difficult than usual, if we except the complication from the gatherings, which are foreign to the subject.

I cited Mr. Marechal's observation, because the case is similar to that which makes the subject of this essay. Mr. Marechal's patient had a fracture which crossed the parietal and temporal bones: mine had fractures in the same bones, and same places; there was also another, and some very serious bruises, which made the disease complicated. Mr. Marechal, trepanned his patient twelve times: I cured mine with one operation, and by a method which to the best of my knowledge, had never before been tried.

DEVEZE.